

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

WINDBREAK/SHELTERBELT RENOVATION

(Acre)

CODE 650

DEFINITION

Replacing, releasing, and/or removing selected trees and shrubs or rows within an existing windbreak or shelterbelt, adding rows to the windbreak or shelterbelt or removing selected tree and shrub branches.

PURPOSES

Restoring or enhancing the original planned function of existing windbreaks or shelterbelts.

CONDITIONS WHERE PRACTICE APPLIES

In any windbreak or shelterbelt that is no longer functioning properly for the intended purpose. Extending the length of an existing windbreak is handled under the Oklahoma NRCS Windbreak/Shelterbelt Establishment (380) standard. For normal and periodic pruning, refer to the Oklahoma NRCS Tree/Shrub Pruning (660) standard.

CRITERIA

The following criteria will be used individually or in combination to restore or enhance the performance of a partially functioning windbreak or shelterbelt:

- Individual trees or shrubs will be eliminated as needed to reduce plant competition or to alter the density.
- To improve density and/or vigor of identified rows of trees or shrubs in decline, trees or shrubs with coppicing capability will be cut close to the ground to encourage sprouting.
- Trees or shrubs will be pruned or sheared to remove diseased branches or to alter the density of the planting. Refer to the Oklahoma NRCS Tree/Shrub Pruning (660) standard for instructions on the method of pruning.
- Entire or partial rows of trees or shrubs will be identified and removed to release adjacent rows of trees or shrubs. In most cases, a minimum of two rows will need to be left; a tall row for maximum height protection and a dense short row for low level protection. A single tree row may be left if it is of sufficient density (minimum of approximately 50%) to provide adequate protection at all levels. Tree and shrub removal will not create gaps in the windbreak. Gaps will be blocked by leaving trees in the adjacent row planted in a staggered method to stop the wind from funneling through the gap.
- To improve the growth and vigor of trees and shrubs, competing herbaceous vegetation will be mechanically or chemically controlled. Preemergent or postemergent herbicides may need to be used with or without cultivation to control weeds. Refer to the Oklahoma NRCS Integrated Pest Management (595) and Herbaceous Weed Control (315) standards. Geotextile fabric or polypropylene woven fabric may be used to eliminate competition 3 feet on each side of the tree row. For information on using this fabric refer to the Oklahoma NRCS Mulching (484) standard.
- Additional rows of trees or shrubs will be added adjacent to or within an existing windbreak or shelterbelt to improve the density.
- Existing growing space, shade level, and root competition will be evaluated and determined to be at acceptable levels to permit unimpeded growth of new plantings. Refer to the Oklahoma NRCS Tree/Shrub

Establishment (612) standard for recommendations. Note: It is not considered renovation when extending existing windbreaks with new plantings.

- Replanting may be done to replace trees or shrubs that are ineffective, in a state of decline, or dying. Refer to the Oklahoma NRCS Tree/Shrub Establishment (612) standard for planting recommendations.
- When overlapping of tree canopy occurs between rows of large hardwoods, select species such as hackberry, bur oak, Osage orange, red mulberry and green ash that tolerate competition.
- Residual plants will be protected during the renovation.

Comply with applicable federal, state and local laws and regulations during the installation, operation and maintenance of this practice.

CONSIDERATIONS

Renovation may be accomplished over a period of years.

Debris should be removed from the site and disposed of properly to avoid insect, disease, fire, or operability problems.

Vegetation removed during renovation can be burned as specified by the Oklahoma NRCS Prescribed Burning (338) standard.

Debris and other vegetation removed during renovation may be used to produce energy. Consider the energy balance of this section.

Erosion control may be needed during the renovation process.

Wildlife and pollinator needs should be considered when selecting tree or shrub species to add or remove.

Species diversity, including use of native species, should be considered.

Increasing species diversity could reduce impacts from existing and new diseases and pests.

Refer to the Oklahoma NRCS Tree/Shrub Establishment (612) standard for further guidance on planting trees and shrubs.

Damaging pests will be monitored and controlled when needed.

PLANS AND SPECIFICATIONS

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance):

- Replacement of dead trees or shrubs will continue until the barrier's function is restored.
- Competitive vegetation will be controlled when it inhibits the growth and vigor of the windbreak or shelterbelt.
- Supplemental water will be provided as needed.
- The trees and shrubs will be inspected periodically and protected from adverse impacts including insects, diseases or competing vegetation. The trees or shrubs will also be protected from damage from livestock or wildlife. Exclude livestock during renovation process and until all trees and shrubs have become well established, refer to Oklahoma NRCS Access Control (472) standard.
- Additional thinning, pruning, or sprout management may be needed in the future to maintain function. Trees and shrubs that will generate sprouts will be managed to maintain vigor. At the end of the first year select 3 to 5 of the most vigorous sprouts for retention. Remove all of the other sprouts during the dormant season.

- Natural reproduction should be thinned to approximately a 10 feet spacing. Thinning of existing trees and/or shrubs within the row should not exceed the recommended maximum for the in-the-row spacing by more than 30 percent. Leave as many trees as possible that exhibit the most vigor.
- In cropland, root pruning within 15 feet of the nearest existing tree is desirable but not required. Prune to a depth of 12 to 18 inches.
- Periodic applications of nutrients may be needed to maintain plant vigor. Apply the fertilizer according to the recommendations in the OSU fact sheet F-6412 "Fertilizing Shade and Ornamental Trees and Shrubs". The PH of the soil must also stay within the desirable range for the planted species.

REFERENCES

Bentrup, G. 2008. Conservation buffers: design guidelines for buffers, corridors, and greenways. Gen. Tech. Rep. SRS-109. Asheville, NC: Department of Agriculture, Forest Service, Southern Research Station.

Brandle, J.R. et al. 1988. Windbreak Technology. Agric. Ecosyst. Environ. Vol. 22-23. Elsevier Pub..

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